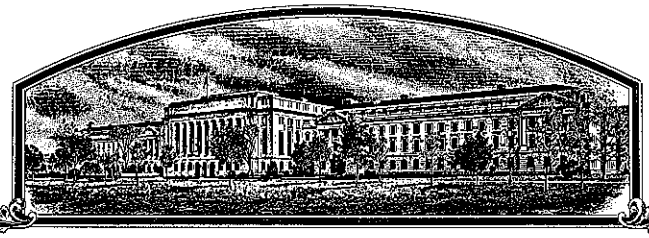


No. 9500310

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Agripro Seeds, Inc.

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED, PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSES, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. IN UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS A CLASS OF SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS SPECIFIED BY THE OWNER OF (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

WHEAT, SOFT RED WINTER

'Shiloh'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this twenty-ninth day of December in the year of our Lord one thousand nine hundred and ninety-five.

Attest:

Marsha A. Stanton
Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Dan Glickman
Secretary of Agriculture

REPRODUCE LOCALLY. *Include form number and date on all reproductions.* FORM APPROVED - OMB NO. 0581-0055

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE DIVISION - PLANT VARIETY PROTECTION OFFICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions and information collection burden statement on reverse)

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a).

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S) *(as it is to appear on the Certificate)*
HybriTech US, a Monsanto Company
~~Agripro Seeds, Inc.~~ CGM 01 Jun 1998

2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER
89M-4417A

3. VARIETY NAME
SHILOH

4. ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP Code, and Country)*
6700 Antioch
P.O. Box 2962
Shawnee Mission, Kansas 66201-1362

5. TELEPHONE *(include area code)*
913-384-4940

6. FAX *(include area code)*
913-384-0208

FOR OFFICIAL USE ONLY

PVPO NUMBER
9500310 pen&ltr

FILING DATE
10/19/95 mmg
SEPT 7, 1995

FEES RECEIVED
FILING AND EXAMINATION FEE:
$2450.00
DATE
SEPT 7, 1995
CERTIFICATION FEE:
$300.00
DATE
DEC. 4, 1995

7. GENUS AND SPECIES NAME
Triticum aestivum

8. FAMILY NAME *(Botanical)*
Gramineae

9. CROP KIND NAME *(Common name)*
Soft Red Winter Wheat

10. IF THE APPLICANT NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION *(corporation, partnership, association, etc.) (Common name)*
Corporation

11. IF INCORPORATED, GIVE STATE OF INCORPORATION
Delaware

12. DATE OF INCORPORATION
June 1994

13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS
Robert Bruns
806 N. Second Street
P.O. Box 30
Berthoud, Colorado 80513
OR
Christine Bruns
Berthoud, CO
Mark J. Messmer
HybriTech Us
5912 North Meridian
Wichita KS 67204
cgm 01 Jun 1998
email:
Mark.J.Messmer@
Monsanto.Com

14. TELEPHONE *(include area code)*
~~970-532-3721~~
316 755 7707

15. FAX *(include area code)*
~~970-532-2035~~
316 755 0072

16. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED *(Follow instructions on reverse)*

a. ☒ Exhibit A. Origin and Breeding History of the Variety
b. ☒ Exhibit B. Statement of Distinctness
c. ☒ Exhibit C. Objective Description of the Variety
d. ☒ Exhibit D. Additional Description of the Variety
e. ☒ Exhibit E. Statement of the Basis of the Applicant's Ownership
f. ☒ Voucher Sample *(2,500 viable untreated seeds of, for tuber propagated varieties verification that tissue culture will be deposited and maintained in a public repository)*
g. ☒ Filing and Examination Fee ($2,460), made payable to "Treasurer of the United States" *(Mail to PVPO)*

17. DOES THE APPLICANT SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY, AS A CLASS OF CERTIFIED SEED? *(See Section 83(a) of the Plant Variety Protection Act)?*
☒ YES *(If "yes," answer items 18 and 19 below)* ☐ NO *(If "no," go to item 20)*

18. DOES THE APPLICANT SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?
☒ YES ☐ NO

19. IF "YES" TO ITEM 18, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED?
☒ FOUNDATION ☒ REGISTERED ☐ CERTIFIED

20. HAS THE VARIETY OR A HYBRID PRODUCED FROM THE VARIETY BEEN RELEASED, USED, OFFERED FOR SALE, OR MARKETED IN THE U.S. OR OTHER COUNTRIES?
☐ YES *(If "yes," give names of countries and dates)* ☒ NO

21. The applicant(s) declare that a viable sample of basic seed of the variety will be furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate.

The undersigned applicant(s) is(are) the owner(s) of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Applicant(s) is(are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF APPLICANT *(Owner(s))*		SIGNATURE OF APPLICANT *(Owner(s))*	
NAME *(Please print or type)* Robert Bruns		NAME *(Please print or type)*	
CAPACITY OR TITLE: General Manager-Wheat Research and Product Development	DATE 9/26/95	CAPACITY OR TITLE	DATE

EXHIBIT A.

ORIGIN AND BREEDING HISTORY OF SHILOH

Parentage: Becker/Coker 833

Date of Cross: April, 1983

The cross between Becker and Coker 833 was made in the Brookston greenhouse in the spring of 1983. The F1 was grown in the field at Brookston, Indiana and the F2 and F3 generations were grown in the field in Marion, Arkansas in 1985 and 1986. In the 1987 greenhouse the 56 selected F4 plants were advanced by single seed descent to the F6 generation. Eight selections were grown in the field in 1988 at Brookston, Indiana as Pre-Y1 headrows. One was selected with superior disease resistance, height and maturity which became 'Shiloh'. It was grown in Y1 trials (preliminary yield trials) at two locations and has been in advanced yield trials from 1990 to the present. It has been entered in the 1993-94 Uniform Eastern Soft Wheat Nursery under the experimental number ABI89-4417A.

In 1992, 60 headrows were grown in Jonesboro, Arkansas and ten rows were discarded for being slightly too tall. In 1993 an additional 60 headrows were grown in Berthoud, Colorado which were nested by an initial seed increase which yielded 800 pounds of breeder seed.

Shiloh has been uniform and stable since 1992. Less than 0.5% of the plants were rogued from the initial seed increase in 1993. Approximately 90% of the variant plants were taller, awnleted wheat plants, 5% were bronze chaffed, awned wheat plants and 5% were white chaffed, awned wheat plants. Up to 1% variant plants may be encountered in subsequent generations.

EXHIBIT B.

STATEMENT OF DISTINCTNESS

Shiloh is most similar to the soft red winter wheat Becker. However, it can be easily distingushed by the following morphological characteristics:

- Shiloh is an awnleted soft wheat. Becker is an apically awnleted wheat (Crop Science 28:376 1988).
- Shiloh has an ovate seed shape, (Berthoud, Colorado 1993 thru 1995). Becker has an elliptical seed shape, (Berthoud, Colorado 1993 and 1994).

FORM APPROVED: OMB NO. 0581-0055

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK, MEAT, GRAIN & SEED DIVISION
BELTSVILLE, MARYLAND 20705

EXHIBIT C
(Wheat)

OBJECTIVE DESCRIPTION OF VARIETY

WHEAT (*TRITICUM SPP.*)

INSTRUCTIONS: *See Reverse.*

NAME OF APPLICANT(S)

Agripro Seeds, Inc.

ADDRESS *(Street and No. or R.F.D. No., City, State, and ZIP Code)*

6700 Antioch
P.O. Box 2962
Shawnee Mission, Kansas 66201-1362

FOR OFFICIAL USE ONLY

PVPO NUMBER 9500310

VARIETY NAME OR TEMPORARY DESIGNATION 'SHILOH'

Place the appropriate number that describes the varietal character of this variety in the boxes below.
Place a zero in first box (e.g. [0][8][9] or [0][9]) when number is either 99 or less or 9 or less.

1. KIND:

[1] 1 = COMMON 2 = DURUM 3 = EMMER 4 = SPELT 5 = POLISH 6 = POULARD 7 = CLUB

2. TYPE:

[2] 1 = SPRING 2 = WINTER 3 = OTHER *(Specify)* _____ [1] 1 = SOFT 2 = HARD 3 = OTHER *(Specify)* _____

[2] 1 = WHITE 2 = RED 3 = OTHER *(Specify)* _____

3. SEASON - NUMBER OF DAYS FROM [redacted] TO:

[1][1][9] FIRST FLOWERING Jan. 1st [1][2][4] LAST FLOWERING

4. MATURITY *(50% Flowering)*:

[0][4] NO. OF DAYS *EARLIER* THAN ..... [7] 1 = ARTHUR 2 = SCOUT 3 = CHRIS

[--][--] NO. OF DAYS *LATER* THAN ..... [--] 4 = LEMHI 5 = NUGAINES 6 = LEEDS 7=Cardinal

5. PLANT HEIGHT *(From soil level to top of head)*:

[0][9][6] CM. HIGH

[--][--] CM. TALLER THAN ..... [---]

[0][7] CM. SHORTER THAN ..... [7] 1 = ARTHUR 2 = SCOUT 3 = CHRIS 4 = LEMHI 5 = NUGAINES 6 = LEEDS 7=Cardinal

6. PLANT COLOR AT BOOTING *(See reverse)*:

[3] 1 = YELLOW GREEN 2 = GREEN 3 = BLUE GREEN

7. ANTHER COLOR:

[1] 1 = YELLOW 2 = PURPLE

8. STEM:

[1] Anthocyanin: 1 = ABSENT 2 = PRESENT

[2] Waxy bloom: 1 = ABSENT 2 = PRESENT

[2] Hairiness of last internode of rachis: 1 = ABSENT 2 = PRESENT

[1] Internodes: 1 = HOLLOW 2 = SOLID

[0][5] NO. OF NODES *(Originating from node above ground)*

[2][1] CM. INTERNODE LENGTH BETWEEN FLAG LEAF AND LEAF BELOW

9. AURICLES:

[2] Anthocyanin: 1 = ABSENT 2 = PRESENT

[1] Hairiness: 1 = ABSENT 2 = PRESENT

10. LEAF:

[1] Flag leaf at booting stage: 1 = ERECT 2 = RECURVED 3 = OTHER *(Specify)*: _____

[2] Flag leaf: 1 = NOT TWISTED 2 = TWISTED

[1] Hairs of first leaf sheath: 1 = ABSENT 2 = PRESENT

[2] Waxy bloom of flag leaf sheath: 1 = ABSENT 2 = PRESENT

[1][1] MM. LEAF WIDTH *(First leaf below flag leaf)*

[1][7] CM. LEAF LENGTH *(First leaf below flag leaf)*:

4-

'SHILOH' Agripro Seeds, Inc.

FORM GR-470-4 (REVERSE) 9500310

11. HEAD:

[3] Density: 1 = LAX 2 = DENSE 3=middense

[1] Shape: 1 = TAPERING 2 = STRAP 3 = CLAVATE 4 = OTHER (Specify) _____

[3] Awnedness: 1 = AWNLESS 2 = APICALLY AWNLETED 3 = AWNLETED 4 = AWNED

[2] Color at maturity: 1 = WHITE 2 = YELLOW 3 = PINK 4 = RED 5 = BROWN 6 = BLACK 7 = OTHER (Specify): _____

[0 7] CM. LENGTH [1 0] MM. WIDTH

12. GLUMES AT MATURITY:

[2] Length: 1 = SHORT (CA. 7 mm.) 2 = MEDIUM (CA. 8 mm.) 3 = LONG (CA. 9 mm.)

[2] Width: 1 = NARROW (CA. 3 mm.) 2 = MEDIUM (CA. 3.5 mm.) 3 = WIDE (CA. 4 mm.)

[2] Shoulder shape: 1 = WANTING 2 = OBLIQUE 3 = ROUNDED 4 = SQUARE 5 = ELEVATED 6 = APICULATE

[1] Beak: 1 = OBTUSE 2 = ACUTE 3 = ACUMINATE

13. COLEOPTILE COLOR:

[1] 1 = WHITE 2 = RED 3 = PURPLE

14. SEEDLING ANTHOCYANIN:

[2] 1 = ABSENT 2 = PRESENT

15. JUVENILE PLANT GROWTH HABIT:

[2] 1 = PROSTRATE 2 = SEMI-ERECT 3 = ERECT

16. SEED:

[1] Shape: 1 = OVATE 2 = OVAL 3 = ELLIPTICAL

[1] Cheek: 1 = ROUNDED 2 = ANGULAR

[2] Brush: 1 = SHORT 2 = MEDIUM 3 = LONG

[1] Brush: 1 = NOT COLLARED 2 = COLLARED

[---] Phenol reaction (See instructions): 1 = IVORY 2 = FAWN 3 = LT. BROWN 4 = BROWN 5 = BLACK

[3] Color: 1 = WHITE 2 = AMBER 3 = RED 4 = PURPLE 5 = OTHER (Specify) _____

[6.5] MM. LENGTH [3.3] MM. WIDTH [3 8] GM. PER 1000 SEEDS

17. SEED CREASE:

[1] Width: 1 = 60% OR LESS OF KERNEL 'WINOKA' 2 = 80% OR LESS OF KERNEL 'CHRIS' 3 = NEARLY AS WIDE AS KERNEL 'LEMHI'

[1] Depth: 1 = 20% OR LESS OF KERNEL 'SCOUT' 2 = 35% OR LESS OF KERNEL 'CHRIS' 3 = 50% OR LESS OF KERNEL 'LEMHI'

18. DISEASE: (0 = Not Tested, 1 = Susceptible, 2 = Resistant) 3=Moderately Susceptible 4=Moderately Resistant

[1] STEM RUST (Races) _____ [2] LEAF RUST (Races) _____ [0] STRIPE RUST (Races) _____ [0] LOOSE SMUT

[3] POWDERY MILDEW [0] BUNT [2] OTHER (Specify) Soil Virus Complex (SBMV & WSSMV)

19. INSECT: (0 = Not Tested, 1 = Susceptible, 2 = Resistant) 3=Moderately Susceptible 4=Moderately Resistant

[0] SAWFLY [0] APHID (Syn.) [0] GREEN BUG [0] CEREAL LEAF BEETLE

[0] OTHER (Specify) _____ HESSIAN FLY RACES: [1] GP [0] A [1] B [1] C [1] D [1] E [0] F [0] G

20. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED:

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Plant tillering	Becker	Seed size	Becker
Leaf size	Becker	Seed shape	Becker
Leaf color	Becker	Coleoptile elongation	Becker
Leaf carriage	Becker	Seedling pigmentation	Becker

INSTRUCTIONS

GENERAL: The following publications may be used as a reference aid for the standardization of terms and procedures for completing this form:

(a) L.T. Briggle and L. P. Reitz. 1963. Classification of Triticum Species and Wheat Varieties Grown in the United States. Technical Bulletin 1278, United States Department of Agriculture.

(b) T.E. Wells. 1965. A Standardized Phenol Method for Testing Wheat Seeds for Varietal Purity. Contribution No. 28 to the handbook of seed testing prepared by the Association of Official Seed Analysts. (See attachment.)

LEAF COLOR: Nickerson's or any recognized color ian should be used to determine the leaf color of the described variety.

EXHIBIT D.

ADDITIONAL BOTANICAL DESCRIPTION OF SHILOH

Shiloh is a soft red winter wheat bred and developed by Agripro Seeds, Inc. Shiloh is a midstrong strawed, high yielding, medium height wheat with midseason maturity. Shiloh provides very good resistance to leaf rust and soilborne virus complex. Shiloh provides good resistance to septoria complex, and moderate resistance to powdery mildew. Winter survival has been excellent in its area of adaptation. Milling properties are acceptable and baking characteristics are good.

Juvenile growth habit is semi-erect. Plant color at boot stage is blue green with an erect, twisted flag leaf. Head shape is tapering, awnleted and yellow at maturity. Glumes are glabrous, midlong and midwide with oblique shoulders and obtuse beaks. Seed shape is ovate with rounded cheeks.

Shiloh is primarily adapted to that area between Interstate 40 (Arkansas) (south) and Interstate 72 (Illinois)-Interstate 70 (Ohio)(north) and from Missouri east through Ohio.

EXHIBIT E.

STATEMENT OF THE BASIS OF APPLICANT'S OWNERSHIP

The variety for which Plant Variety Protection is hereby sought was developed by Dr. Koy Miskin and J. Barton Fogleman, employees of Agripro Seeds, Inc. By agreement between employees and Agripro Seeds, Inc., all rights to any invention, discovery, or developement made by the employee while employed by Agripo Seeds, Inc., were assigned to Agripro Seeds, Inc., with no rights of any kind pertaining to 'Shiloh' being retained by the employees.

EXHIBIT F.

QUALITY AND AGRONOMIC DATA

AGRIPRO WHEAT
SOFT RED WINTER WHEAT

YEAR: 1993

YEAR	VARIETY OR LINE	LOC	MILLING BRK %	MILLING BRK FLR R	MILLING TOT %	MILLING TOT FLR R	WH PROT %	BAKING FL PROT %	BAKING FL PROT R	BAKING C. DIAM mm	BAKING C. DIAM R	BAKING T.G R	NORRIS HARD	SCORES MILL	SCORES BAKE	COMMENTS
	(Shiloh)							89M-4417A								
92	ABI89M-4417A	UA	45.7	4	69.4	7	7.6	6.5	5	17.6	1	2	05	11-D	8-B	
92	" 89M-4417A	SM	39.4	3	69.6	6	9.4	8.5	3	18.0	2	3	15	9-C	8-B	
91	" 89M-4417A	BK	37.7	5	69.3	6	12.9	11.2	1	17.6	1	3	36	17-C	6-A	
90	" 89M-4417A	FO	42.1	5	66.1	4	10.4	9.1	1	17.4	1	3	16	13-B	6-A	
90	" 89M-4417A	CA	41.8	5	69.1	1	9.8	8.9	3	17.4	1	3	21	7-A	8-A	
90	" 89M-4417A	BK	43.0	5	70.5	1	11.7	9.8	3	17.4	2	2	20	7-A	9-A	
89	" 89M-4417A	BK	42.4	3	63.1	5	8.7	6.8	9	18.5	2	5	07	13-B	18-C	
	AVERAGE		**41.7**	**4**	**68.2**	**4**	**10.1**	**8.7**	**4**	**17.7**	**1**	**3**	**17**	**11-C**	**9-B**	
								CALDWELL								
91	CALDWELL	BK	40.6	4	69.5	4	11.3	10.1	3	18.5	1	3	45	12-B	8-A	
90	CALDWELL	FO	45.0	5	66.5	4	10.5	8.6	3	17.4	1	2	19	13-B	7-A	
90	CALDWELL	CA	45.3	4	66.4	4	10.4	9.2	3	17.6	1	4	29	12-B	9-A	
90	CALDWELL	BK	46.2	4	65.8	4	11.9	10.0	3	17.4	2	2	21	12-B	9-A	
89	CALDWELL	BK	41.6	5	64.0	4	9.7	7.8	1	18.9	2	2	24	13-B	7-A	
	AVERAGE		**43.7**	**4**	**66.4**	**4**	**10.8**	**9.1**	**3**	**18.0**	**1**	**3**	**28**	**12-B**	**8-A**	
								FLORIDA 302								
92	FLORIDA 302	SM	40.2	3	72.6	3	9.2	8.2	3	17.9	1	4	14	6-A	8-B	
92	FLORIDA 302	UA	46.5	3	71.9	3	7.9	6.9	3	17.8	2	3	04	6-A	8-B	
91	FLORIDA 302	SM	36.7	5	64.0	6	13.9	12.2	1	16.8	3	4	21	17-C	11-B	
91	FORIDAL 302	BK	41.4	4	71.2	4	12.3	10.8	3	17.8	1	4	35	12-B	9-A	
91	FLORIDA 302	UA	40.6	4	72.0	3	11.4	9.9	1	17.7	1	3	30	10-B	6-A	
90	FLORIDA 302	CA	38.3	4	64.8	4	12.4	10.6	3	17.4	1	4	27	12-B	9-A	
	AVERAGE		**40.6**	**4**	**69.4**	**4**	**11.2**	**9.8**	**2**	**17.6**	**2**	**4**	**22**	**11-C**	**9-B**	

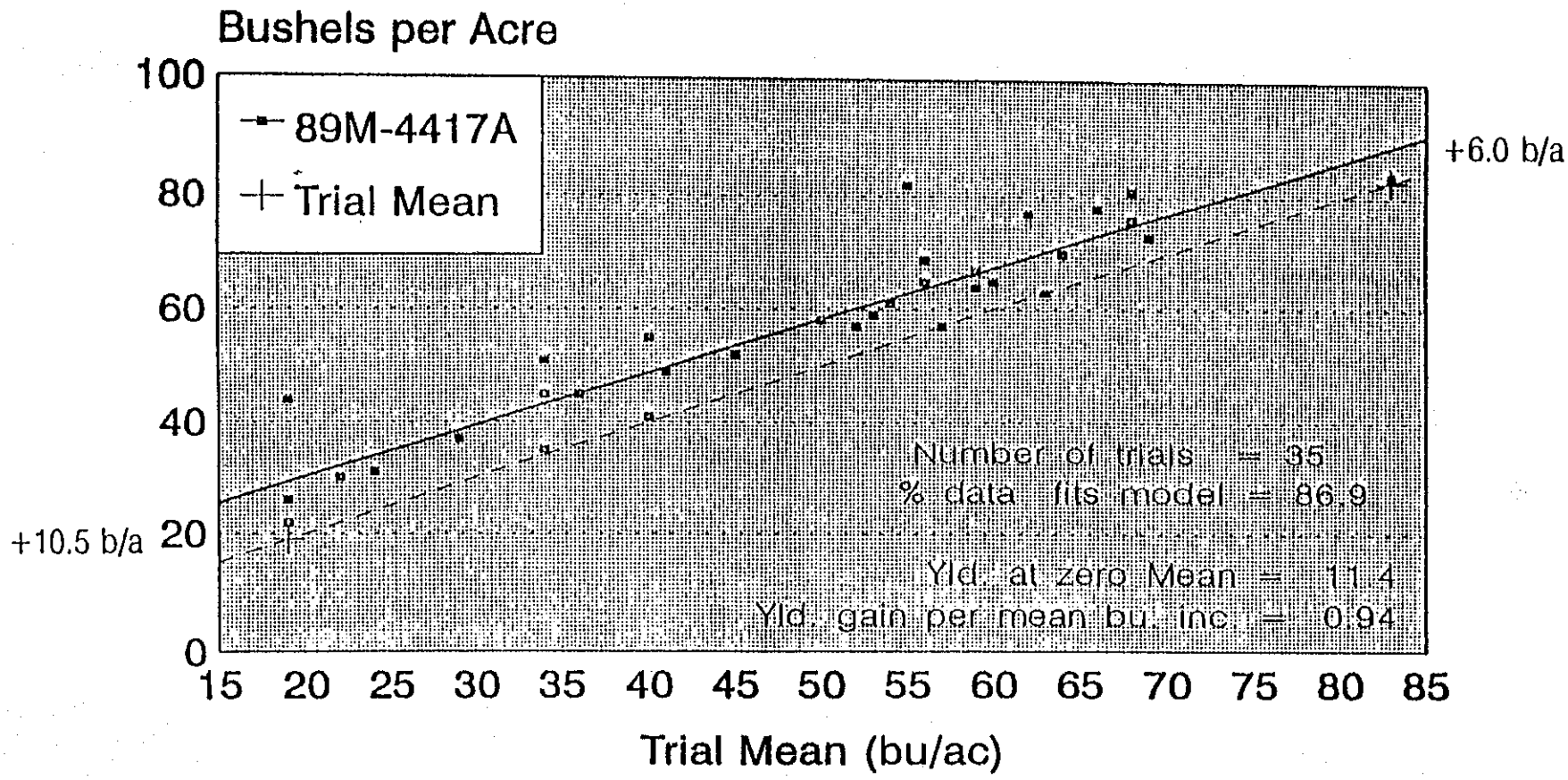
*Ratings: 1-2=Excellent 3-4=Good 5=Acceptable 6-7=Questionable 8-9=Unacceptable

YIELD DATA SUMMARY

YR	VARIETY	YIELD	TRIAL MEAN	ID	SITE	COUNTY	STATE	REGION
	(Shiloh)							
90	ABI89-4417A	79.0	74.0	ABI	WOODBURN	ALLEN	IN	MW
90	ABI89-4417A	74.0	76.0	ABI	FINDLAY	HANCOCK	OH	MW
90	ABI89-4417A	63.0	67.0	ABI	BROOKSTO	WHITE	IN	MW
90	ABI89-4417A	65.0	56.0	ABI	JAMESTOW	GREENE	OH	MW
90	ABI89-4417A	59.0	53.0	ABI	JAMESTOW	GREENE	OH	MW
90	ABI89-4417A	69.0	56.0	ABI	PANA	CHRISTIA	IL	MW
90	ABI89-4417A	82.0	55.0	ABI	PANA	CHRISTIA	IL	MW
90	ABI89-4417A	51.0	34.0	ABI	SULLIVAN	SULLIVAN	IN	MW
90	ABI89-4417A	26.0	19.0	ABI	GRAYVILL	EDWARDS	IL	MM
90	ABI89-4417A	44.0	19.0	ABI	SIKESTON	SCOTT	MO	MS
90	ABI89-4417A	64.0	57.0	ABI	MARVELL	PHILLIPS	AR	MS
91	ABI89-4417A	67.0	63.0	ABI	WOODBURN	ALLEN	IN	MW
91	ABI89-4417A	68.0	67.0	ABI	FINDLAY	HANCOCK	OH	MW
91	ABI89-4417A	50.0	46.0	ABI	BROOKSTO	WHITE	IN	MW
91	ABI89-4417A	59.0	53.0	ABI	JONESBOR	CRAIGHEA	AR	MW
91	ABI89-4417A	65.0	60.0	ABI	PANA	CHRISTIA	IL	MW
91	ABI89-4417A	45.0	36.0	ABI	CARMI	WHITE	IL	MM
91	ABI89-4417A	55.0	40.0	ABI	SULLIVAN	SULLIVAN	IN	MW
91	ABI89-4417A	11.0	22.9	ABI	CLEVELAN	BOLIVAR	MS	SS
91	ABI89-4417A	29.0	24.5	ABI	MARVELL	PHILLIPS	AR	MS
91	ABI89-4417A	69.0	59.7	ABI	ULM	MONROE	AR	MS
91	ABI89-4417A	30.0	22.1	ABI	CRAWFORD	CRITTEND	AR	MS
91	ABI89-4417A	49.0	41.0	ABI	JONESBOR	CRAIGHEA	AR	MS
91	ABI89-4417A	22.0	19.0	ABI	KENNETT	DUNKLIN	MO	MS
91	ABI89-4417A	45.0	34.0	ABI	SIKESTON	SCOTT	MO	MS
91	ABI89-4417A	31.0	24.2	ABI	RUTHERFO	GIBSON	TN	MS
91	ABI89-4417A	81.0	67.8	ABI	PANA	CHRISTIA	IL	MW
92	ABI89-4417A	71.0	78.8	962	ONEIDA	PHILLIPS	AR	MS
92	ABI89-4417A	65.0	69.0	962	ULM	PRAIRIE	AR	MS
92	ABI89-4417A	84.0	83.1	962	CRAWFORD	CRITTEND	AR	MS
92	ABI89-4417A	78.0	65.5	962	JONESBOR	CRAIGHEA	AR	MS
92	ABI89-4417A	76.0	68.2	962	MATTHEWS	NEW MADR	MO	MS
92	ABI89-4417A	77.0	62.0	962	DYER	GIBSON	TN	MS
93	ABI89-4417A	58.0	50.0	ABI	JONESBOR	CRAIGHEA	AR	MS
93	ABI89-4417A	68.0	71.0	ABI	BROOKSTO	WHITE	IN	MW
93	ABI89-4417A	67.0	76.0	ABI	FINDLAY	HANCOCK	OH	MW
93	ABI89-4417A	58.0	66.0	ABI	LIMA	ALLEN	OH	MW
93	ABI89-4417A	62.0	71.0	ABI	MARION	MARION	OH	MW
93	ABI89-4417A	46.0	40.0	ABI	WOODBURN	ALLEN	IN	MW
93	ABI89-4417A	73.0	69.0	ABI	SULLIVAN	SULLIVAN	IN	MW
93	ABI89-4417A	56.0	71.0	ABI	RICHMOND	WAYNE	IN	MW
93	ABI89-4417A	41.0	40.0	ABI	ST. JACO	SAINT CL	IL	MM
93	ABI89-4417A	61.0	54.0	ABI	GRAYVILL	EDWARDS	IL	MM
93	ABI89-4417A	50.0	50.0	ABI	JONESBOR	CRAIGHEA	AR	MW
93	ABI89-4417A	71.0	67.8	ABI	CLEVELAN	BOLIVAR	MS	SS
93	ABI89-4417A	77.0	78.6	ABI	ONEIDAD	PHILLIPS	AR	MS
93	ABI89-4417A	70.0	76.2	ABI	ULM	MONROE	AR	MS
93	ABI89-4417A	70.0	64.4	ABI	FISHERS	CRAIGHEA	AR	MS
93	ABI89-4417A	67.0	58.6	ABI	JONESBOR	CRAIGHEA	AR	MS
93	ABI89-4417A	59.0	53.0	ABI	SIKESTON	SCOTT	MO	MS
93	ABI89-4417A	57.0	51.9	ABI	DYERSBUR	DYER	TN	MS
93	ABI89-4417A	57.0	57.3	ABI	MENDON		KY	
93	ABI89-4417A	54.0	53.3	ABI	CLEVELAN	BOLIVAR	MS	SS

89M-4417A vs. Trial Mean

1990 - 1993 Adapted Area Data



(North to I-72 IL, I-70 OH & South to I-40)

APPLICATION TO
NATIONAL SMALL GRAIN VARIETY REVIEW BOARD

(Shiloh)

IV. Variety Name ABI89-4417A (cont.)

2. FACTORS SUPPORTING AREA OF ADAPTATION: (cont.)

b. Reaction to major diseases supporting the recommended area of adaptation.

c. Reaction to major insects supporting the recommended area of adaptation.

Agronomic and Pathologic Data

(Shiloh)	TW	ANT.	HT	Surv	LR	SR	Septoria nod.	Septoria trt.	PM	SBV
ABI89-4417A	57	120	99	2.0	2	8	4	3	5	2
PIONEER 2548	57	123	96	3.8	7	3	6	5	1	7
CARDINAL	56	124	107	3.0	5	6	3	4	4	3

*the rankings in this table are based on a 1-9 scale, 1=best; 9=worst

1993-94 USDA-ARS Hessian Fly Screening

	Biotypes B	C	D	E	GP	L	
ABI89-4417A	S	S	S	S	S	S	
CARDINAL	S	R	S	S	R	S	- H3 resistance gene
CALDWELL	R	S	S	R	R	S	- H6 resistance gene

d. Describe processing quality of this variety as compared to a known variety.

YR	VARIETY OR LINE	LOC-CODE	MILLING WH PROT %	R	BRK FLR %	R	TOT FLR %	R	BAKING FL PROT %	R	C. DIAM mm	R	T.G	NORRIS HARD	SCORES MILL	BAKE
92	ABI89-4417A	SM-96208	9.4	0	39.4	3	69.6	6	8.5	3	18.0	2	3	15	9-C	8-B
92	ABI89-4417A	UA-96208	7.6	0	45.7	4	69.4	7	6.5	5	17.6	1	2	05	11-D	8-B
91	ABI89-4417A	BK-93134	12.9	0	37.7	5	69.3	6	11.2	1	17.6	1	3	36	17-C	6-A
91	ABI89-4417A	SM-96220	13.0	0	36.6	5	66.2	4	10.7	5	18.0	2	3	25	13-B	12-B
91	ABI89-4417A	UA-96220	11.3	0	37.7	5	69.2	6	8.9	5	17.8	1	5	30	17-C	12-B
90	ABI89-4417A	CA-81516	9.8	0	41.8	5	69.1	1	8.9	3	17.4	1	3	21	7-A	8-A
		AVERAGE	10.7	0	39.8	5	68.8	5	9.1	4	17.7	1	3	22	12-C	9-B
92	FLORIDA 302	SM-96202	9.2	0	40.2	3	72.6	3	8.2	3	17.9	1	4	14	6-A	8-B
92	FLORIDA 302	UA-96202	7.9	0	46.5	3	71.9	3	6.9	3	17.8	2	3	04	6-A	8-B
91	FLORIDA 302	BK-93101	12.3	0	41.4	4	71.2	4	10.8	3	17.8	1	4	35	12-B	9-A
91	FLORIDA 302	SM-96202	13.9	0	36.7	5	64.0	6	12.2	1	16.8	3	4	21	17-C	11-B
91	FLORIDA 302	UA-96202	11.4	0	40.6	4	72.0	3	9.9	1	17.7	1	3	30	10-B	6-A
90	FLORIDA 302	CA-96102	12.4	0	38.3	4	64.8	4	10.6	3	17.4	1	4	27	12-B	9-A
		AVERAGE	11.2	0	40.6	4	69.4	4	9.8	2	17.6	2	4	22	11-C	9-B

*RATINGS: 1-2=Excellent 3-4=Good 5=Acceptable 6-7=Questionable 8-9=Unacceptable

PRIMARY AREA OF ADAPTATION